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ABSTRACT

The purpose of this study was to determine how cognitive style instructions to respondents of a survey instrument affected the resulting psychometric properties of the scale. It was hypothesized that a group which is instructed to carefully respond will have a mean score further from the neutral point, a larger standard deviation, and a higher internal consistency, and will take more time in responding, than will a group which is instructed to immediately respond. Using an instrument designed to measure feelings about the manipulation of people in interpersonal situations, respondents were asked to either "carefully respond" or "immediately respond" to each item. The results suggested that neither the central tendency, dispersion, nor the reliability of the scores were strongly affected by type of directions. The amount of time spent in responding was only slightly affected. (DWH)

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The Effects of Type of Instructions on the Psychometric Properties of a Survey Instrument

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Abstract

The purpose of this study was to determine how cognitive style instructions to respondents of a survey instrument affected the resulting psychometric properties of the scale. Using an instrument designed to measure feelings about the manipulation of people in interpersonal situations, respondents were asked to either "carefully respond" or "immediately respond" to each item. The results suggested that neither the central tendency, dispersion, nor reliability of the scores were strongly affected by type of directions. The amount of time spent in responding was only slightly affected.

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The Effects of Type of Instructions on the Psychometric Properties of a Survey Instrument

In many educational applications of survey research, students are requested to respond to affective instruments. The accompanying directions for such instruments vary widely in the amount of reflection requested of the respondent. Some instructions call for immediate responses, some encourage careful reflection, and others omit any reference to the matter.

Three examples will illustrate some of the diversity in directions commonly used with affective instruments (from Robinson and Shaver, 1973):

> "First impressions are usually best in such situations" (p. 593).
>
> "Circle the response which best represents your immediate reaction to the opinion expressed" (p. 530).
>
> "It is important that you try to answer each item frankly and honestly" (p. 121).

Because of the widespread use of such instruments in survey research, it would appear that the proper choice of instructions would be a matter of concern to researchers. This study was thus designed to empirically investigate how instructions to carefully respond and instructions to immediately respond would differ in their effects upon certain psychometric properties.

A closely related phenomenon has long been investigated in the area of cognitive test construction, namely, the question as to whether examinees should feel free to change their responses to objective test items or depend solely upon their first impressions. Most investigators have focused their attention toward the effects of answer changing on total scores, with the reasonably consistent finding that response changes improve scores more often than not (Mueller and Wasser, 1977). Crocker and Benson (1980) reported that answer changing produced virtually no change in the internal consistency of the items.

For survey research using affective scales, it appears reasonably analogous to expect that subjects who employ careful reflection will produce less random error than those who respond immediately. Therefore, in this study it was hypothesized that a group which is instructed to carefully respond will have a mean score further from the neutral point, a larger standard deviation, and a higher internal consistency, and will take more time in responding, than will a group which is instructed to immediately respond.

Method

Subjects

To maximize the probability that the treatments would actually be

implemented by the subjects, a sample of mature students was sought who would be capable of following the prescribed directions. It was also desired to select a sample sufficiently homogeneous that one instrument would be appropriate, yet diverse enough to reflect the general population of prospective teachers. Such a sample was selected by using the pupils enrolled in a required, third year educational measurement course at a midwestern university. The group consisted almost exclusively of sophomores and juniors. A total of 150 subjects in seven classrooms participated.

Materials

Since the sample was comprised of prospective teachers, an instrument was sought which would measure a construct important to the teaching act, particularly one dealing with the role of influencing and directing students. The Machavellianism scale (Robinson and Shaver, 1973) was selected because it appeared to satisfy this condition, inasmuch as it purports "to tap ... the degree to which a person feels other people are manipulable in interpersonal situations" (p. 590). The following is an illustrative item: "The best way to handle people is to tell them what they want to hear." The scale consists of 20 items in a Likert type format. In the original format, a seven-point scale was used for each item, but for this study, the instrument was modified by using the more conventional five-point scale.

Two forms of instructions were prepared, worded as follows:

"Carefully Respond" instructions: "Consider each question carefully. Be as sincere and accurate as possible within the limited time. If upon reflection, you desire to alter your response, please feel free to change it by erasing or marking it out and circling another response."

"Immediately Respond" instructions: "Indicate your immediate reaction without thinking too much about it. Remember that first impressions are usually best in such matters. Go rapidly; do not go back once you have marked a statement."

Procedure

Within each of the seven classrooms, students were invited to voluntarily and annonymously respond to the instrument. As far as could be determined, only one or two chose not to participate. Copies of the instrument containing either "Carefully Respond" or "Immediately Respond" instructions were randomly distributed. The students were then requested to read and follow the instructions, and to turn in their papers immediately upon completion.

As the papers were turned in, they were numbered sequentially, to allow for a time analysis.

To analyze the scale data, the response positions (strongly disagree through strongly agree) were assigned the integers one through five, respectively, thus allowing for the total scores to potentially range from 20 to 100 points.

Results

The mean scores and standard deviations for both groups are shown in Table 1. When the mean scores were compared, the resulting value of $t = .18$ indicated that no significant difference existed. When the standard deviations were compared, the resulting value of $F = 1.15$ ($df = 74, 73$; $p > .25$) also indicated no significant difference.

The reliability estimates for both groups are shown in Table 1 as alpha values. When these values were compared by conceptualizaing them as correlation coefficients, the resulting value of $z = .83$ likewise indicated no significant difference (Hays, 1973).

Since the students turned in their papers as soon as they were finished, it was possible to assign ranks representing the amount of elapsed time. The data within each class were analyzed with the Mann-Whitney U-test, and the results are shown in Table 2. Using the Stouffer method detailed by Mosteller and Bush (1954, p. 329) for combining the results of statistical tests, it was found that the groups differed in the expected direction at a statistically significant level ($z = 3.46$, $p < .01$). However, an examination of Table 2 suggests that the effect of the directions on the working speed of the subjects is probably small and unlikely to be noticeable in classes of less than 30 pupils.

Discussion

For the survey researcher, one of the implications of this study appears to be that, since subjects tend to give little heed to the instructions on how much time or attention to give to each item, it might be best to just ask the subject for their response, without giving any cognitive style instructions. Another implication may be that, when reading reports of survey research, the reader can probably correctly assume that the obtained results were not seriously affected by the type of cognitive style instructions to the subjects.

It may be appropriate to conclude with an ethical consideration. One of the hallmarks of a civilized society is that the members carefully consider their thoughts before translating them into action. Although immediate reactions may be improved with training, it appears doubtful that they will ever be better than carefully reasoned ones. Therefore, in most educational settings, it would appear to be advisable for survey researchers to ask the respondents to give their best reasoned judgments within a moderate time period. Interpretors of the results will then be able to have justifiable confidence in the data, both from psychometric and ethical viewpoints.

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Table 1

Means, Standard Deviations and Reliabilities for the Machiavellianism Scale

Group	N	Mean	SD	Alpha
"Carefully Respond"	75	66.48	7.67	.736
"Immediately Respond"	74	66.26	7.16	.665

Table 2

The Mann-Whitney U Test Analysis of the Amount of Time Spent

	Carefully Respond		Immediately Respond		
Class	n	R	n	R	z
1	11	145	11	108	1.15
2	13	209	13	142	1.67
3	8	82	7	38	1.97
4	8	80	8	56	1.16
5	13	210	13	141	1.72
6	11	135	10	96	.92
7	12	161	12	139	.58